International Energy Agency
Energy Efficient End-use Equipment
Solid State Lighting Annex 2019-2024
ssl.iea-4e.org

Participating Countries:
Australia, Denmark,
France, Republic of Korea,
Sweden & United Kingdom

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Launch of IEA 4E SSL Annex
2023 Interlaboratory Comparison of
Temporal Light Modulation Measurements (IC 2023)

Today, the Solid State Lighting Annex (SSL Annex) [1], under the International Energy Agency's Energy Efficient End-use Equipment formally announces the launch of the 2023 Interlaboratory Comparison (IC 2023) of temporal light modulation (TLM) measurements. IC 2023 is building on the success of the SSL Annex's previous IC 2013[2] and IC 2017[3] which taken together had 146 labs from around the world participating in the measurements of LED lighting products.

IC 2023 is open to all photometric labs that have capability for measuring TLM quantities, in particular, short-term flicker indicator (P_{st}^{LM}), and stroboscopic effect visibility measure (SVM), of LED lighting products. Laboratories that conduct or plan to conduct testing of LED lamps and luminaires for these TLM quantities are encouraged to participate in IC 2023. This comparison is being organised primarily to investigate the degree of agreement in the measurements of these TLM quantities among the participants as technical study as well as to provide verification of each participating laboratory's measurement capabilities.

IC 2023 is thus designed in compliance with ISO/IEC 17043[4] to serve as a proficiency test for SSL testing accreditation programmes that recognise this comparison, as was done in IC 2013 and 2017. IC 2023 will use IEC TR 61547-1[5] and IEC TR 63158[6] as the test methods for determining quantities P_{st}^{LM} and SVM respectively. If recognised by accreditation bodies, the participant results reports may be used as a proficiency test not only for IEC TR 61547-1 and IEC TR 63158 but also regional versions of these test methods. The results can also be used for benchmarking.

The comparison will be conducted in a similar way to the SSL Annex's previous comparisons, where participants are assigned to a Nucleus Laboratory which will conduct measurement rounds with laboratories. Participating laboratories will be given a set of four non-directional LED lamps for testing P_{st}^{LM}, SVM, and optionally, flicker index, M_p, and other quantities. Participants can also choose to participate in an optional Technical Study where they will be sent (separately) a light waveform generator with five programmed specific waveforms for measurement, which may be useful to analyse possible problems in participants' measurements.

The SSL Annex has published the Technical Protocol for IC 2023 which can be found here on our website. The protocol is made consistent with CIE TN 012:2021 and in compliance with ISO/IEC 17043[7]. This protocol describes the details of the comparison artefacts (four LED lamps and a TLM generator)

[1] For information on the IEA 4E SSL Annex, please visit our website at: http://ssl.iea-4e.org/
[2] IEA 4E Solid State Lighting Annex: 2013 Interlaboratory Comparison Final Report
[3] IEA 4E Solid State Lighting Annex: 2017 Interlaboratory Comparison Final Report
[4] ISO/IEC 17043:2023 Conformity assessment -- General requirements for proficiency testing
[5] IEC TR 61547-1:2020 Equipment for general lighting purposes - EMC immunity requirements - Part 1: Objective light flickermeter and voltage fluctuation immunity test method
[6] IEC TR 63158:2018 Equipment for general lighting purposes - Objective test method for stroboscopic effects of lighting equipment
[7] ISO/IEC 17043:2023 Conformity assessment -- General requirements for proficiency testing

to be used and the TLM quantities to be measured, and measurement conditions to be reported by each participant. Those who do not measure all the quantities listed in the protocol *can still be accepted* as participants in IC 2023.

After completion of all participants' measurements, each participant will receive an individual test report that could serve as a proficiency test (PT) report, as well as a preliminary IC 2023 final report at the end of the comparison that will present all the results anonymously for a technical study as was done in IC 2013 and IC 2017. Laboratories that are not interested in PT for accreditation may still find participation in IC 2023 of interest for benchmarking purposes.

To make IC 2023 even more widely useful, the SSL Annex will be linked to two other regional TLM interlaboratory comparisons being organised in Europe (MetTLM) and in China (China GBV-LC TLM). Both of these regional IC's will include, in their testing, the same four lamp artefacts and quantities measured as IC 2023, effectively expanding the number of participants compared.

Registration is open from 25 September to 30 November 2023. The price for participating in IC 2023 is set out below with an early registration discount (25 September – 31 October) and a discount for any laboratories that are physically located in an SSL Annex member country (Australia, Denmark, France, Korea, Sweden and the UK). This price includes participation in IC 2023 as well as all the courier costs associated with shipping the artefacts to and from your laboratory:

- Early Registration (25 Sept – 31 Oct) SSL Annex member country: €2,300
- Early Registration (25 Sept – 31 Oct) Non-member country: €2,600
- Regular Registration (1 – 30 Nov) SSL Annex member country: €2,600
- Regular Registration (1 – 30 Nov) Non-member country: €2,900
- Participation in light waveform generator technical study: €1,500

There will be two or three rounds of measurements, depending on the level of interest which will be conducted sequentially in the period from October 2023 to January 2024. Participants will be assigned from the first round in the order of payment received (or they can request a later round). Registration is now open and available at Annex's website: please click here.

Thank you for your interest and support of this work. If you have any questions on this IC, please feel free to contact us at ssl.annex@gmail.com

Sincerely,

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